

CLAIMS

1. A rolling bearing comprising a plurality of rolling elements provided between inner and outer rings, at least one of the inner and outer rings being formed of corrosion resistant bearing steel comprising carbon of 0.5 to 0.56 wt%, silicon of 1 wt% or less, manganese of 1 wt% or less, phosphorus of 0.03 wt% or less, sulfur of 0.01 wt% or less, chromium of 8.00 to 9.50 wt%, molybdenum of 0.15 to 0.50 wt%, copper of 0.30 to 0.7 wt%, titanium of 15ppm or less, vanadium of 0.15 wt% or less, oxygen of 15ppm or less, iron as remaining component and impurities inevitably incorporated therein, the corrosion resistant bearing steel containing eutectic carbides having a circle equivalent diameter with an average value of 0.2 to 1.6 μm , the eutectic carbides having an average area of 0.03 to 2 μm^2 and an area ratio of 2 to 7 %, the corrosion resistant bearing steel having a hardness of HRC 58 to 62 byJIS, and containing a retained austenite of 6 volume % or less.

2 A rolling bearing comprising a plurality of rolling elements provided between inner and outer rings, the inner and outer rings, and the rolling elements being formed of corrosion resistant bearing steel comprising carbon of 0.5 to 0.56 wt%, silicon of 1 wt% or less, manganese of 1 wt% or less, phosphorus of 0.03 wt% or less, sulfur of 0.01 wt% or less, chromium of 8.00 to 9.50 wt%, molybdenum of 0.15 to 0.50 wt%, copper of 0.30 to 0.7 wt%, titanium of 15ppm or less, vanadium of 0.15 wt% or less, oxygen of 15ppm or less, iron as remaining component and impurities inevitably incorporated therein, the corrosion resistant bearing steel containing eutectic carbides having a circle equivalent diameter with an average value of 0.2 to 1.6 μm , the eutectic carbides having an average area of 0.03 to 2 μm^2 and an area ratio of 2 to 7 %, the corrosion resistant bearing steel having a hardness of HRC 58 to 62 byJIS, and containing a retained austenite of 6 volume % or less.

3 A rolling bearing comprising a plurality of rolling elements provided between a rolling contact groove formed on an outer periphery of a shaft and a rolling contact groove formed on an inner periphery of an outer ring, at least one of the shaft and the outer ring being formed of corrosion resistant bearing steel comprising carbon of 0.5 to 0.56 wt%, silicon of 1 wt% or less, manganese of 1 wt% or less, phosphorus of 0.03 wt% or less, sulfur of 0.01 wt% or less, chromium of 8.00 to 9.50 wt%, molybdenum of 0.15 to 0.50 wt%, copper of 0.30 to 0.7 wt%, titanium of 15ppm or less, vanadium of 0.15 wt% or less, oxygen of 15ppm or less, iron as remaining component and impurities inevitably incorporated thereinto, the corrosion resistant bearing steel containing eutectic carbides having a circle equivalent diameter with an average value of 0.2 to 1.6 μm , the eutectic carbides having an average area of 0.03 to 2 μm^2 and an area ratio of 2 to 7 %, the corrosion resistant bearing steel having a hardness of HRC 58 to 62 byJIS, and containing a retained austenite of 6 volume % or less

4. The rolling bearing according to claims 1, 2 or 3, wherein an average crystal grain size of the corrosion resistant bearing steel is 6 to 9.5 μm .

5. A material for a rolling bearing, which is corrosion resistant bearing steel comprising carbon of 0.5 to 0.56 wt%, silicon of 1 wt% or less, manganese of 1 wt% or less, phosphorus of 0.03 wt% or less, sulfur of 0.01 wt% or less, chromium of 8.00 to 9.50 wt%, molybdenum of 0.15 to 0.50 wt%, copper of 0.30 to 0.7 wt%, titanium of 15ppm or less, vanadium of 0.15 wt% or less, oxygen of 15ppm or less, iron as remaining component and impurities inevitably incorporated thereinto, the corrosion resistant bearing steel containing eutectic carbides having a circle equivalent diameter with an average value of 0.2 to 1.6 μm , the eutectic carbides having an average area of 0.03 to 2 μm^2 and an area ratio of 2 to 7 %.

6. An instrument having a rotating portion using the rolling bearing according to claims 1 or 4.
7. An instrument having a rotating portion using the rolling bearing according to claims 2 or 4.
8. An instrument having a rotating portion using the rolling bearing according to claims 3 or 4.
9. The instrument having the rotating portion according to any one of claims 6 to 8 is a hard disk drive.
10. The instrument having the rotating portion according to any one of claims 6 to 8 is a precision instrument.